

## **REMARKS**

After entry of this Amendment, claims 1-14 remain in the application. Claims 1, 4 and 6 have been amended, claims 2, 3, 5 and 7-11 remain unchanged. Claims 12-14 have been added. The specification has been amended merely to fix typographical errors as described immediately below. No new matter has been added in this Amendment.

### ***Amendments and Comments***

Regarding the specification, paragraph [0031] has been amended merely in order to correct a typographical error. Specifically, “(R<sup>4</sup>R<sup>5</sup>SiO<sub>1/2</sub>)” has been replaced with “(R<sup>4</sup>R<sup>5</sup>SiO<sub>2/2</sub>)” in order to fix a typographical error in the subscript of SiO. The English specification originally submitted to the USPTO, taken from WO 2005/056640, specifically includes the correct subscript in the formula “(R<sup>4</sup>R<sup>5</sup>SiO<sub>2/2</sub>)” on page 10, paragraph [0019], line 27. The Applicants respectfully point out that a typographical error occurred on the part of the USPTO as the PTO was readying the application for publication (e.g. possibly during OCR processing).

In addition, paragraph [0061] of Reference Example 4 has been amended merely in order to correct a typographical error. Specifically, “8” has been replaced with “0.8” in order to fix a typographical error. The priority document originally submitted to the USPTO, i.e., JP 2003-412454, includes “0.8” on page 12 in paragraph [0034], to the extent further support is necessary. The Applicants believe that a typographical error occurred during translation of the priority document.

Regarding the claims, claims 1 and 6 have been amended in order to claim the specific type of epoxy-containing organopolysiloxane resin employed in the present invention. Specifically, the total content of alkoxy groups and hydroxyl groups on silicon atoms of the epoxy-containing organopolysiloxane resin is no more than 2 mole % of all substituents on silicon atoms. Support for this amendment can be found in at least paragraph [0040] of the instant specification. Further, claim 4 has been amended merely by adding an omitted comma in order to remain consistent with the other claims.

In addition, claims 12-14 have been added to further claim various embodiments of the present invention. Specifically, claim 12 encompasses certain embodiments of the present invention where the refractive index of the cured body is greater than the refractive index of the cladding layer of the optical waveguide. Support for this amendment can be found in at least original claim 11, as filed. Claims 13 and 14 encompass specific embodiments of the present invention, wherein each of the embodiments include an epoxy-containing organopolysiloxane resin composed of specific units, as illustrated. Support for this amendment can be found in at least paragraph [0037] of the instant specification. No new matter has been added in this Amendment.

#### ***Examiner's Claim Rejections - 35 USC §102***

Claims 1-10 stand rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,832,036 to Ghoshel et al. (Ghoshal).

Claims 1 and 6 have been amended, so the §102 rejections are now moot as described below. Specifically, Ghoshal fails to teach each and every element of amended

claims 1 and 6, as required to properly establish anticipation under 35 U.S.C. §102(e). In addition, relative to any obviousness concerns, the prior art fails to disclose, teach, or suggest all of the elements as claimed in instant claims 1 and 6.

To summarize, claims 1 and 6, as amended, include an epoxy-containing organopolysiloxane resin represented by the following siloxane unit formula:  $(R^1 R^2 R^3 SiO_{1/2})_a (R^4 R^5 SiO_{2/2})_b (R^6 SiO_{3/2})_c (SiO_{4/2})_d$ ; wherein amongst other conditions,  $0.01 \leq b/c \leq 0.3$  and the total content of alkoxy groups and hydroxyl groups on silicon atoms of the epoxy-containing organopolysiloxane resin is no more than 2 mole % of all substituents on silicon atoms. The aforementioned content of alkoxy and hydroxyl groups can be readily appreciated with reference to the EXAMPLES of the instant application (see, e.g., paragraphs [0059] and [0060]). Further, the aforementioned content of alkoxy and hydroxyl groups can be readily appreciated with reference to the specification of the instant application (see, e.g., paragraph [0040]). For example, as described in the instant specification, the total content of alkoxy groups and hydroxyl groups brings about improved storage stability and thermal stability of the cured body of the organopolysiloxane resin.

As the Examiner is well aware, to properly establish anticipation of a claim under 35 U.S.C. §102, the reference must teach each and every element of that claim.<sup>1</sup> In addition, “[a]ll words in a claim must be considered in judging the patentability of that claim against the prior art.”<sup>2</sup>

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<sup>1</sup> See MPEP §2131.

<sup>2</sup> See *In re Wilson*, 424 F.2d 1382, 1385 (C.C.P.A. 1970).

With regard to the prior art, the Applicants respectfully submit that the siloxane polymer as taught by Ghoshal, which comprises structural units having the formulae X and Y and terminating in residues OR<sup>8</sup> and R<sup>8</sup> is different from the epoxy-containing organopolysiloxane resin as claimed in the instant Amendment. Specifically, at a minimum, Ghoshal does not teach (or even suggest) an epoxy-containing organopolysiloxane resin represented by the following siloxane unit formula: (R<sup>1</sup>R<sup>2</sup>R<sup>3</sup>SiO<sub>1/2</sub>)<sub>a</sub> (R<sup>4</sup>R<sup>5</sup>SiO<sub>2/2</sub>)<sub>b</sub> (R<sup>6</sup>SiO<sub>3/2</sub>)<sub>c</sub> (SiO<sub>4/2</sub>)<sub>d</sub>; wherein amongst other conditions, 0.01≤b/c≤0.3 and the total content of alkoxy groups and hydroxyl groups on silicon atoms of the epoxy-containing organopolysiloxane resin is no more than 2 mole % of all substituents on silicon atoms.

Notably, Ghoshal is **completely silent** with regard to such contents. Further, the Applicants must respectfully assert that even while not explicitly disclosed by Ghoshal, the total content of R<sup>1</sup>O and R<sup>8</sup>O, i.e., alkoxy groups in one molecule of the siloxane polymer, **must be far greater than 2 mole %**. For example, such a content must be far greater than 2 mole % when R<sup>1</sup> of R<sup>1</sup>O is an alkyl group (see, e.g., column 7, lines 27+; “R<sup>1</sup> is preferably methyl or ethyl” and Example 1; “R<sup>1</sup> was methyl...R<sup>8</sup> was methyl”), since R<sup>1</sup>O, i.e., an alkoxy group, bonds to every single silicon atom (Si) in formula X of Ghoshal. As another example, the total content of RO, R<sup>2</sup>O and R<sup>8</sup>O, i.e., alkoxy groups in one molecule, must be far greater than 2 mole %, when R<sup>1</sup> of R<sup>1</sup>O is the leftmost formula shown in (3) (see column 3; lines 12+), since RO bonds to every single Si in the formula X of Ghoshal.

In addition, unlike the present invention, such a siloxane polymer of Ghoshal cannot satisfy the condition  $0.01 \leq b/c \leq 0.3$ . For example, the rightmost formula shown in “(3)” (see column 3; lines 12+) bonds to every single Si in formula X, and therefore, is outside of the aforementioned range. In view of the foregoing, it is clear that present invention, as claimed, is novel and non-obvious relative to teachings of Ghoshal.

#### ***Examiner’s Claim Rejections - 35 USC §103***

Claim 11 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Ghoshal. However, because claim 11 depends from claim 1, and because claim 1 has been further amended to claim an additional condition of the epoxy-containing organopolysiloxane resin employed in the present invention, the Applicants respectfully submit that this rejection is now overcome.

In view of the foregoing, the Applicants respectfully submit that claims 1 and 6, as amended, are novel over the prior art, and therefore, all of the §102(b) rejections are overcome. Specifically, at a minimum, Ghoshal fails to disclose, teach, or even suggest the epoxy-containing organopolysiloxane resin employed in the present invention, especially an epoxy-containing organopolysiloxane resin wherein the total content of alkoxy groups and hydroxyl groups on silicon atoms of the epoxy-containing organopolysiloxane resin is no more than 2 mole % of all substituents on silicon atoms. Further, although not necessary in view of the current rejections, it is clear that no 35 U.S.C. §103 rejection would be proper in view of the teachings of Ghoshal.

### ***Conclusions***

The Applicants respectfully submit that claims 1 and 6 are both novel and non-obvious in view of the disclosure, teachings, and suggestions of the prior art such that claims 1 and 6 as amended, as well as the claims that depend therefrom, are in condition for allowance.

If any additional fees are necessary to respond to the outstanding Office Action, you are hereby authorized to charge such fees to Deposit Account No. 08-2789 in the name of Howard & Howard Attorneys PLLC.

Respectfully submitted,

**HOWARD & HOWARD ATTORNEYS PLLC**

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/David M. LaPrairie/

**David M. LaPrairie, Registration No. 46,295**  
450 West Fourth Street  
Royal Oak, MI 48067-2557  
(248) 723-0442